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REQUIRED OPERATIONAL CAPABILITY (ROC) NUMBER LOG 168
FOR AN INDIVIDUAL CO. (U) MARINE CORPS WASHINGTON DC
28 FEB 83

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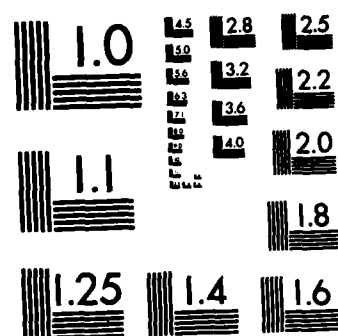
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RDD-24-B-caj

28 FEB 1983

ADA 126181

From: Commandant of the Marine Corps
To: Distribution List

Subj: Required Operational Capability (ROC) No. LOG 1.60 for an individual Combat Clothing and Equipment System for Amphibious Operations in Mountain and/or Cold Weather Environments

Ref: (a) MCO 3900.4B

Encl: (1) Required Operational Capability (ROC) No. LOG 1.60 for an Individual Combat Clothing and Equipment System for Amphibious Operations in Mountain and/or Cold Weather Environments

1. This letter establishes and promulgates ROC No. LOG 1.60 for an Individual Combat Clothing and Equipment System for Amphibious Operations in Mountain and/or Cold Weather Environments. The ROC has been developed in accordance with the reference and is contained in the enclosure.

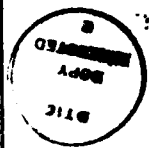
2. The Commanding General, Marine Corps Development and Education Command (Director, Development Center) is the Marine Corps point of contact for the development efforts pertaining to Individual Combat Clothing and Equipment System for Amphibious Operations in Mountain and/or Cold Weather Environments.

Eugene B. Russell

Eugene B. RUSSELL
DEPUTY CHIEF OF STAFF FOR RD&S

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REQUIRED OPERATIONAL CAPABILITY (ROC) No. LOG 1.60
FOR AN
INDIVIDUAL COMBAT CLOTHING AND EQUIPMENT SYSTEM FOR AMPHIBIOUS
OPERATIONS IN MOUNTAIN AND/OR COLD WEATHER ENVIRONMENTS

1. STATEMENT OF THE REQUIREMENT. The Marine engaged in amphibious operations and subsequent operations ashore in a mountainous and/or cold weather environment requires a combat clothing and equipment system which is lightweight, has minimum bulk, and will meet the unique conditions imposed on landing forces in amphibious operations. An Initial Operational Capability (IOC) of FY 1986 is required.

2. THREAT AND OPERATIONAL DEFICIENCY

a. Threat. Not applicable.

b. Operational Deficiency. The weight and bulk of current cold weather clothing and equipment cause severe reductions in individual and unit mobility. In addition to the problem of individual mobility, the amphibious forces' ability to project power ashore rapidly and effectively is reduced substantially by the bulk of the tent group equipment which must accompany the rifle squad in a cold environment. These two problems combine to reduce the combat effectiveness of a Marine unit operating in either mountainous or cold weather areas.

3. OPERATIONAL AND ORGANIZATIONAL CONCEPTS

a. Operational Concept. The clothing and equipment system described herein will be used by Marines engaged in amphibious and subsequent operations ashore where the temperature may range from +40°F (+4°C) to -25°F (-31°C). The System will be designed primarily for infantry personnel requiring a high degree of mobility; however, the system or individual items will be used by all Marines.

b. Organizational Concept. The Marine Corps Individual Cold Weather Combat Clothing and Equipment System will be used by Marine units as a one-for-one replacement for current cold-wet/cold-dry clothing and equipment.

c. Manpower, Training, and Logistic Support. No special training or logistic support requirements are anticipated with the introduction of this system. There will be no additional manpower requirement imposed by introduction of the System.

4. ESSENTIAL CHARACTERISTICS

a. System Components. The Individual Cold Weather Combat Clothing and Equipment System will be a holistic system consisting of the following items:

- (1) Clothing system.
- (2) Cold Weather Shelter System.
- (3) Sleeping bag.
- (4) Sleeping mat.
- (5) Insulated canteen and carrier.
- (6) Snow camouflage overgarment and pack cover.
- (7) Load Carrying System.

b. General System Characteristics. The items of the system will be water resistant, quick-drying and will have the least bulk and weight possible. The System will be designed to:

- (1) Meet or exceed requirements imposed by the use of MCCRES Cold Weather Mission Performance Standards or Cold Weather Standard Performance Tests during formal or informal MCCRES evaluations.
- (2) Accommodate the 5th through the 95th percentile combat Marine.
- (3) Achieve at least a 30 percent weight reduction when compared to the current standard items required to be worn at -25°F (-31°C); 50 percent overall reduction desired.
- (4) Achieve at least a 25 percent reduction in compressed bulk when compared to the current standard items; a 33 percent overall reduction desired.
- (5) Function holistically.
- (6) Require no user maintenance other than normal care, cleaning, or replacement of damaged components, and be repairable by the using unit.
- (7) Be easily donned and doffed as compared to the current standard items.
- (8) Incorporate woodland and snow camouflage properties.
- (9) Possess inherent infrared reflective qualities.

(10) Be constructed of materials which are not harmful to skin and/or wounds and do not constitute a thermal hazard.

(11) Be compatible with standard NBC protective equipment and be capable of being decontaminated.

(12) Have a service life of 120 days under combat use.

(13) Have a shelf life of at least five years.

(14) Be mildew and rot resistant.

(15) Be POL resistant where practical.

c. Individual Component Characteristics

(1) Clothing System. The clothing system will be designed to operate in the $+40^{\circ}\text{F}$ ($+4^{\circ}\text{C}$) to -25°F (-31°C) temperature range. The clothing must be capable of providing 30 minutes of protection (1-hour desired) against environmental injury to a stationary individual at an ambient air temperature of -25°F (-31°C). The clothing will:

(a) Use the layering system and ventilation openings.

(b) Have a parka and trouser shell garments (external layer) which are made of waterproof and vapor-permeable materials, and are designed to offer the greatest environmental protection for the least weight. The hood of the parka will be designed for wear under the PASGT helmet and must not restrict peripheral vision.

(c) Have sublayers which can be dried quickly under combat conditions and give the best possible weight-to-insulation ratio.

(d) Have a ski/march boot which is adaptable to temperatures in the designated range and which can also be used by landing force personnel while aboard ships. The boot must be compatible with state-of-the-art ski and snowshoe bindings.

(e) Have handwear which will protect the hands from cold injury. Primary consideration should be given to protecting the insulation used in the handwear from degradation by external moisture; a vapor-permeable, water-impermeable external shell is recommended. A separate anti-contact glove is required.

(f) Have headwear which will offer thermal protection to the head, neck and face, and will not interfere with the operation of communication equipment.

(2) A Cold Weather Shelter System. A special shelter will be used as a supplement to, but not as a replacement for, the 5-

and 10-man arctic tents. A component unit of the system will be issued to each member of a squad or task organized unit. The shelter will:

(a) Be capable of configuration of the component parts to form a shelter for 3, 4, 5, or 8 Marines.

(b) Require no special tools for erection and striking; a self-supporting design is desired.

(c) Be capable of shedding snow in all configurations to a degree sufficient to ensure the structural integrity of the shelter.

(d) Be constructed of material which is waterproof, vapor-permeable, and will not emit toxic fumes if exposed to flame.

(e) Have a maximum weight of 3.5 lbs (1.59kg) per component unit; 2 lbs (.911kg) desired.

(3) Sleeping Bag. The sleeping bag will be waterproof, vapor-permeable, and provide adequate insulation to ensure that, when used with adequate ground insulation, a user wearing long underwear will be reasonably comfortable at 0°F (-18°C), and a user wearing items of the clothing system will be comfortable at -25°F (-31°C). Maximum weight will be 6 lbs (2.72kg); 5 lbs (2.27kg) desired.

(4) Sleeping Mat. The sleeping mat will provide insulation from the ground when in a sitting or prone position. This mat must:

(a) Remain pliable at an ambient air temperature of -25°F (-31°C).

(b) Not absorb water.

(c) Be a minimum 72 in (182.88cm) long and 23 in (58.42cm) wide.

(d) Weigh not more than 1 lb (.45kg).

(e) Have a rolled size of 23 in (58.42cm) long and less than 7 in (17.78cm) in diameter.

(f) Will have a minimum CLO value of 8.

(5) Insulated Canteen. The insulated canteen and carrier will:

(a) Be capable of maintaining water with an initial temperature of +212°F (+100°C) in a liquid state for 8 hours at

-25°F (-31°C) with an overall temperature loss at the end of this period of not more than +60°F (+16°C).

(b) Have a one pint capacity.

(c) Incorporate a detachable drinking cup.

(d) Have an opening wide enough to accomodate the standard plastic spoon used in the combat ration.

(e) Be as light as possible, consistent with the service life requirement.

(f) Have the capability to be thawed near or in a fire without damage.

(6) Camouflage Overgarment. The white, snow-camouflage overgarment and load carrying system cover will be water repellent and will resist soiling. Maximum weight will be 2 lbs (.91kg).

(7) Load Carrying System. The system will be designed to carry all items of the clothing and equipment system, except the sleeping mat, plus a 2-day supply of food. A two pack (main and patrol) system may be considered to meet this requirement. This system will:

(a) Have quick release devices on both shoulder straps.

(b) Have compression straps to allow the external volume of the pack to be adjusted.

(c) Incorporate a belt which partially supports the weight of the pack, has provisions for attachment of the fighting load, and can be quickly and easily detached from the pack.

(d) Have sufficient internal volume in the main pack to allow the clothing and equipment items (less the sleeping mat) or a 5-gallon (18.93 litre) water can to be carried within the pack.

(e) Have an internal pocket which will accept the standard military backpack radio of the period.

(f) Have attachment points to allow the sleeping mat to be attached to the outside of the pack.

(g) Have a suspension system on the main pack which, when used with the attached belt, will comfortably support a combined combat and existence load of 50 lbs (22.68kg).

(h) Incorporate an overall design which is as clean as possible to allow ease of movement in confined spaces; an internal

frame design is suggested. Maximum weight will be 4 lbs (1.81kg); 3.5 lbs (1.59kg) desired.

5. OTHER WARFARE AREAS CONCERNED. The introduction of this clothing and equipment system will affect Mission Area-216.1 (Combat Service Support (Individual Clothing and Equipment)). Additionally, it will have a moderate affect upon the functional category of logistics.

6. RELATED EFFORTS

a. U.S. Marine Corps Required Operational Capability (ROC) LOG 1.50 for an Aircrew Clothing System, Cold Weather.

b. U.S. Army Draft Letter of Agreement (LOA) for Clothing and Equipment System, Cold Weather, for the Ground Soldier.

c. The U.S. Army Natick Research and Development Laboratories has developed prototypes of some of the items in this system (sleeping mat, arctic canteen, waterproof/vapor-permeable fabrics) and has a continuing RDT&E program in this area.

7. TECHNICAL FEASIBILITY, ENERGY-EFFECTIVENESS IMPACT, AND COST FORECAST

a. Technical Feasibility. The subject equipment is technically feasible.

b. Energy-Effectiveness Impact. Not applicable.

c. Cost Forecast.

(1) RDT&E,N

(\$000)

<u>FY</u> Amount	<u>82</u> 150	<u>83</u> 75	<u>84</u> 50	<u>85</u> 50	<u>TOTAL</u> 325
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(2) Procurement. The following are estimated unit production costs:

Clothing System	\$350.00
Sleeping Bag	\$100.00
Sleeping Mat	\$50.00
Insulated Canteen and Carrier	\$35.00
Camuflage Overgarment Pack Cove	\$25.00
Load Carrying System	\$90.00